

Artificial General Covariance and the Problem of Time

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ABSTRACT: It is widely accepted that there is a close relation between the knot of technical and conceptual difficulties known as the problem of time and the general covariance of general relativity. I propose to clarify this relation by examining the extent to which the problem of time afflicts other generally covariant theories, particularly parameterized field theories. Intuitively, one thinks of the general covariance of such theories as being superficial and artificial, in contrast to the deeper and more organic general covariance of general relativity. One would hope that these differences would lead to variation in the degree to which various theories are afflicted by the problem of time. I think a case can be made out that this is so.